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SURVEY OF SOVIET HEAVY INDUSTRY (5)

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### SURVEY OF SOVIET HEAVY INDUSTRY (5)

This is a series report, published approximately biweekly, which contains items of interest on Soviet heavy industry as reflected in articles, short news items, announcements, etc., appearing in various USSR publications. The items contained in this report fall under the broad categories listed below in the table of contents.

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## AUTOMATION AND MECHANIZATION

### Machine Tool Plant Specialization

The renovation of equipment particularly bothers us at the plant, and when the social review of the technological level of the machinery and instruments produced took place, we prepared a fundamental work in which all modern demands for hydraulics and electrical equipment were defined. This work was transmitted to the technical administration of the Sovnarkhoz, and there it lies, doing nobody any good.

In the meantime the plant itself is forced to produce the equipment for its machine tools. This is expensive! For us, the workers of "Krasnyy Proletariy", the fulfillment of the decisions of the July Plenum of the Central Committee of the CPSU means not only completion by the deadline of the complex mechanization and automation of the production of mass-production machine tools, but a product of the very highest technological level.

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### Machine Tool Plant Specialization (cont'd)

However, today I should like to remind the National Economic Council of the necessity of speeding up the plant's specialization. The plan for specialization was drawn up by us and sent to the machine construction administration seven months ago, but the variety of machine tools produced by the plant right now has not diminished in the least. For example, our plant is producing the same machine tools as the Ryazan' plant. In reference to this, I should like to mention that we at one time helped the Ryazan' plant set up production on these tools. We sent them the documentation, helped with the equipment and organization of production, sent specialists to Ryazan' and taught their specialists in our plant. Now everything is set up.

The comrades from Ryazan' who visited us not long ago were surprised to see their own products being assembled in the "Krasnyy Proletariy" plant. They said that they could take over the entire production of 500-700 millimetre center height lathes. We request the technical

Machine Tool Plant Specialization (cont'd)

and production administrations of the Sovnarkhoz to complement each other's activities and get a clear cut specialization for the "Krasnyy Proletariy" plant in the RSFSR State Planning Commission.

I don't want the fellows from our plant or from the Economic Council to take these remarks for complaints or an attempt to slough off the responsibility for new machinery production. The point is that we possess great reserves which we have not yet used. As far as the schedule is concerned, the replacement of old machinery production and the plan for developing and producing new and perfect-ed machine tools for our national economy, the workers of the "Krasnyy Proletariy" are achieving success.

Accepting the socialist obligation for the early completion of the 1960 plan, we have decided to produce several new machine tools ahead of the planned deadline, and the collective will fulfill this decision. (Mosk-ovskaya Pravda, 20 July 1960. Full translation).

Complex Mechanization

Carrying out the decisions of the July Plenum of the Central Committee of the CPSU, our collective is doing the maximum to mechanize labor-consuming processes. Here are several examples. For a long time the foundry was holding up the growth of production. It wasn't satisfying the needs of the mechanized shops for cast-ings, and much of its production was faulty. People were constantly forced to stand around doing nothing.

At one of the production meetings it was decided to machine cast small and medium moulds, to equip a conveyor for pouring the moulds, and to mechanize the preparation of the mould. This was done and things look good. The increase of labor productivity of the caster and considerable decrease in faulty production has allowed the creation of a stockpile of semi-finished and finished parts, and this has put an end to rush work and bog-downs. Transverse-planing machines are now being produced strictly according to schedule. A so-called walking conveyor has been set up in the assembly shop. This has

Complex Mechanization (cont'd)

made it easier for the metal workers and has sped up production.

We intend to increase the productive might of the enterprise and to initiate the further mechanization of production. In particular, a new installation for hardening by means of high frequency current will be added as well as high-productivity heating furnaces in the forge shop. A new area for mechanized drum cleaning, etc., is being equipped in the foundry. (Trud, 28 July 1960. Partial translation).

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Complex Mechanization and Automation

The "Krasnyy Proletariy" Plant will complete the complex mechanization and automation of machine tool production this year, the first among the capital's largest enterprises. (Moskovskaya Pravda, 20 July 1960. Partial translation).

### Mechanization Growth

The following is the dynamics of the complex mechanization and automation of enterprises, shops, and sections for three years of the Seven-year Plan: in 1959 -- one enterprise and 26 shops; in 1960 -- four enterprises and 17 shops; in 1961 -- 10 enterprises and 27 shops. After the July Plenum of the Central Committee of the CPSU, the technological retooling of the capital's industry will be stepped up even more. Below are the comparative figures, beginning with the creation of the economic councils.

In 1957 one automated line was introduced at the enterprises of the capital, and one year later 14 lines were set up. In 1961 100 automated and semi-automated lines will be put into operation. In 1957 935 automated, component and special machine tools, progressive machines and units were put into operation. The following year their number increased by 1,602, and in 1961 2,000 will be put into operation. These are some of the figures

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### Mechanization Growth (cont'd)

showing the technological progress of Moscow industry.  
(Moskovskaya Pravda, 20 July 1960. Full translation).

Automated Sewing Machine Line

At the test plant of the Minsk Special Design Bureau No 2, an automated line for the machining of sewing machine crankshafts was developed. It is for the Orshanskiy Plant. The line is comprised of nine machine tools. Each of them performs a specific turning operation. All the processes are automated. The line is run by one operator. Its application in production will free 25 persons for other work. (Sovetskaya Belorussiya, 27 July 1960. Full translation).

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Automated Line Production Delay

Seven automated lines will be put into operation this year at the Automobile Plant imeni Likhachev if the Plant imeni Ordzhonikidze finishes them. Why the if? Because the Khar'kov "Elektroprivod" Plant has, up to now, not delivered one panel for the new automated lines to the Moscow machine tool builders. The RSFSR State Planning Commission knows about this, but it has done nothing about it. It's about time! (Moskovskaya Pravda, 26 July 1960. Partial translation).

### Automated Axle Line

Tests have been started on two sections of the locally-produced automated line at the Kramatorskiy Heavy Machine Tool Construction Plant. This line, which is for the production of railroad car axles, is the first of its type in the Soviet Union. Every 81 seconds it will produce a railroad car axle weighing more than half a ton. This is ten times faster than usual production methods. (Moskovskaya Pravda, 23 July 1960. Partial translation).

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### Mass Production of Standardized Machine Tool Components

The significant experience of the Tula Industrial Region, where the Economic Council, together with the Tula Mechanical Institute, has organized a shop for the mass production of model standardized components for machine tool units at a machine construction plant, plays a part in the organization of the centralized production of standardized aggregate components for machine tools. Within a one-year period this shop produced 98 specialized highly productive machine tool units and 3,500 standardized component units for the various plants of the Tula Sovnarkhoz. (Mekhanizatsiya i Avtomatizatsiya Tekhnologicheskikh Protsessov v Mashinostroyenii /Mechanization and Automation of Technological Processes in Machine Construction/, by A. P. Ivanov, Moscow, 1960, p 304).



### Social Review of Industry

6,800 workers from Moscow industry, research and design organizations, joined in almost 700 commissions, took part in the social review of the technological level of machinery, instruments, and equipment being produced. They inspected 10,800 units and established that more than 6,000 of them fulfill modern demands, 2,000 should be modernized, and the rest should be taken out of production and replaced within the next two years. This was the Muscovites' answer to the decisions of the July Plenum of the Central Committee of the CPSU.

34 new automated lines, 40 machine tools, and 38 types of highly productive tools were produced for today at the suggestion of the participants of the review. Many of these tools have no equal, either here or abroad.

Spline grinding tool. For the first time anywhere in the world, all of its processes have been automated. Its weight is one ton less than similar machine tools.

An automated machine for inspecting the accuracy of the ball production for particularly accurate ball

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### Social Review of Industry (cont'd)

bearings has been set up at the "Kalibr" Plant. This is the first of its kind in the world. It checks up to 7,000 units per hour, replaces five to six inspectors, and saves 75,000 rubles per year.

An automated system of 85 machine tools for the Automobile Plant imeni Likhachev replaces 160 persons and increases labor productivity 9.5 times. The cost of installation will be amortized in less than two years.

Application of electronic inspection and regulating machines. These "Mars" machines are operating at the "Krasnyy Bogatyr'" and "Kauchuk" plants at present. In fulfillment of the decisions of the July Plenum of the Central Committee of the CPSU concerning the increased rate of automation, the Economic Council intends to use the "Mars" on TETs-20, one of four enterprises completing this year the technological retooling of production. This is the world's first automatic brewery,

Social Review of Industry (cont'd)

where the entire production will be electronically controlled. (Moskovskaya Pravda, 20 July 1960. Partial translation).

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New Technological Achievements

How can the increased pulse rate of labor at the Minsk "Udarnik" Plant be explained? Is it not that new shock workers of Communist labor and new innovations have appeared in the plant, or perhaps that the machine builders, gathering momentum in the socialist competition for a worthy greeting to the July Plenum of the Central Committee of the CPSU, are preparing to storm new heights of technological progress?

Technological progress. Yes, perhaps these words more accurately define the working day of the Minsk machine builders. We did not spend several months at this plant. That which we have just seen has, frankly, amazed us. You see something new at every step. By the opening day of the Plenum of the Central Committee of the CPSU, a conveyor was put into operation for the assembly of reduction gears and gear boxes. Labor productivity has increased and labor consumption has decreased. Earlier a conveyor appeared in the assembly

New Technological Achievements (cont'd)

shop. The plant also has other technological innovations. There are so many you can't count them all. Suffice it to say that the collective announced the early fulfillment of the semi-annual plan for technological improvements long before the opening of the Plenum of the Central Committee of the CPSU. This year nine new models were brought out: a small snow remover, a grader, a harvester and others.

Discussing the decisions of the July Plenum of the Central Committee of the CPSU and weighing their potential, the machine builders of "Udarnik" came to the conclusion that there are still many unused resources at the plant. It is first of all a matter of increasing labor productivity, improving the quality of the machinery, and economizing on metal. In comparison with past years, the percentage of returned goods has sharply decreased, but there are some. This immediately became a subject of serious discussion. In all shops concrete measures are being worked out which will sharply increase

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New Technological Achievements (cont'd)

the quality of the products. The machine builders are following the initiative of the country's leading enterprises by preparing to enter into competition for production of exclusively top quality goods.

Much is already being done in this direction. The work of the plant designers is particularly noteworthy. Some of them are drawing up blueprints of new vehicles based on the results of experimental model testing, and others are busy improving the design of mass-produced models. The workers are helping the designers.

Take the conveyor on which the D-452 scoop loader is assembled. Recently it was put into mass-production operation. Although the loader has performed fairly well, the machine builders have not yet, as they say, dotted the i and are continuing to perfect the machine. It is not by chance that the plant's chief designer, Comrade Yemzhin, is often seen at the production line where he listens carefully to the remarks of the workers, technicians, and engineers. They are burning with the

New Technological Achievements (cont'd)

desire to express their corrective criticism, with the aim of using less metal in the machine and increasing its reliability.

The plant collective has its difficulties. They consist first of all in the fact that the plant produces vehicles in small quantities. This year, for example, they have already completed the program for the AOZ-100M and AOZ-55M swamp reclaiming units, the D-460 snow remover, the D-453 driller, and others. New vehicles have been put into mass production. Obviously this demands great skill, experience, and knowledge of each worker, which would help him adapt to the production of the completely new vehicles. We must say that the plant collective is successfully coping with the tasks. Production from the line is running ahead of schedule. The historical decision of the July Plenum of the Central Committee of the CPSU is being implemented by the "Udarnik" Plant. The new D-452 loader operates well, but its design could be improved, and it could be made more rugged

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New Technological Achievements (cont'd)

and reliable. This thought is shared by the plant's chief designer, M. N. Yemzhin, metal worker-assembler I. N. Molodkin, and Assembly Shop Foreman B. G. Klebanov. (Sovetskaya Belorussiya, 24 July 1960. Full translation).

### Modernization of Equipment

The July Plenum of the Central Committee of the CPSU recommended the general dissemination of the experience of the Novo-Kramatorsk Plant. Its collective independently worked out the technical documentation and organized the production of parts and components for the modernization of their line of production.

As one of their obligations, the Kramatorsk machine builders completed all the necessary equipment for the renovation of two rolling mills -- at the "Zaporozhstal'" Plant and the Plant imeni Il'ich. What is the collective of innovators working on now? "Our designers who are developing equipment for the steel industry are particularly busy," the Chief Engineer of the Novo-Kramatorsk Plant, I. N. Khudyakov, informed our correspondent. "In the post-war period, 25 large rolling mills were built according to their plans. Learning of the collective's initiative, the steel workers from several plants asked their help in renovating obsolescent equipment.

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### Modernization of Equipment (cont'd)

Many plans are already in operation. In particular, the technical documentation for the perfection of the rolling mill in the "Zaporozhstal'" Plant is being completed. One more workers' stand, more powerful motors, and mechanisms for the automatic measuring of tension and thickness of the metal have been added. Other innovations reflecting the modern level of metallurgical technology are being introduced. The rolling speed of the old unit is being increased by 300%, and production will be increased by 70%.

The plan for technological renovation of the pipe mill of the Transcaucasian Metallurgical Plant has been completed. A plan for doubling the power of the Novo-Lipetskiy Plant is being developed, and several non-ferrous metal rolling mills are being modernized. Steel-pouring cranes and presses, which were produced by the plant several years ago are being renovated. Highly productive NKMZ power shovels are at work at many of the country's construction sites and mining operations. These

Modernization of Equipment (cont'd)

tested machines are also being modernized. An all-welded scoop has been developed for them. By merely replacing the old scoop, our engineers have increased each ESh-4-40's capacity by a quarter of a million cubic metres of dirt per year. A new, lighter boom has also been developed. On the basis of the experience gained in the modernization of existing machinery, the plant will start mass production on two types of modern power shovels in 1961. Without changing the plans of the famed ESh-4-40, production is beginning on machines with a five cubic metre scoop and 45 metre boom, and miners and construction men will get a machine capable of removing ten cubic metres of earth instead of six.

"The praise won by the initiative of the Novo-Kramatorsk Plant collective at the Plenum of the Central Committee of the CPSU," says Comrade Khudyakov, "is causing a new flow of activity. The workers and engineers are striving to produce 1,500 tons of equipment above

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Modernization of Equipment (cont'd)

plan for the modernizing of machines already produced. At the same time we are preparing to produce at least the same amount of additional equipment for the third year of the Seven-year Plan. (Kommunist, Yerevan, 24 July 1960. Full translation).

Automated Line Production

Yuriy Nikolayevich returned to the table and took up the draught, which he knew down to the smallest detail. The contours of the unique automatic machine stood out in sharp lines on the white sheet of Whatman paper. So, it's done! That about which Tatarov and his comrades had dreamed and on which dozens of able hands had worked had finally found its realization in metal. What does one new machine tool mean among the many which are produced every day by the Minsk Automated Line Plant? Nevertheless, this centroshaft tool is unusual. In it are laid the features of the future, exactly as they are laid in the plant, with its shop buildings jutting up into the sky. In them is born modern technology, which is helping the Soviet people overtake time itself.

Lets look back. Hardly anyone who was in Minsk five years ago paid attention to the fields of buckwheat sprawling out to the right of the highway which led to the giant truck plant. And now? Now there is a city here: plant shops, apartment houses, and streets.

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Automated Line Production (cont'd)

More than twenty hectares are occupied by the new plant which arose after the 20th Party Congress -- a pioneer in the automation of Soviet industry. The thousands of workers here decided to fulfill the Seven-year Plan by 1963.

In less than three years the MZAL brand was stamped on the first automated machine tool, and now hundreds like it and dozens of automated lines are in operation all over the country. All these efficient Minsk-produced machine tools are helping the people who are struggling to conquer time and secure the victory of Communist labor. The plant collective built the world's only centroshaft machine tool unit as a gift to the July Plenum of the Central Committee of the CPSU. Its uniqueness lies not in the fact that this automated line, which takes up only a few square metres of space, will replace eighteen ordinary machine tools -- milling, drilling, as well as lathes -- but in the fact that this tool can quickly be adjusted to produce an entirely dif-

Automated Line Production (cont'd)

ferent machined part. This saves hundreds of thousands of rubles. The tool's productivity is very high. For example, it produces the bearing housing for a GAZ-62 distributor case in one minute.

The centroshaft is testimony to the fact that the Minsk machine tool builders are able to value not only their own, but others' time, as well as labor and metal. This is why planning and construction of various types of machine tools and automated lines with a small number of unified components and parts is a definite condition here. This not only saves the state a lot of money but creates pleasant conditions for the creative talents of the designers and engineers.

The centroshaft is not the only gift to the Plenum of the Party's Central Committee. Dozens of remarkable mechanisms have been sent to the USSR Exhibit of the Achievements of the National Economy in Moscow. These include a vertical drilling tool with a turning surface. It will replace four ordinary ones in the production of

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Automated Line Production (cont'd)

brake band arms and will save around 100,000 rubles. Industry also thanks the men from Minsk for the automated line for the machining of hydraulic jack bases, which will save the country more than 350,000 rubles. They are also thankful for the unique quadrilateral automated thread boring unit, which is the equal of four turret lathes and three drilling tools, and for a low-voltage system of operating the automated tools. (Ekonomicheskaya Gazeta, 19 July 1960. Partial translation).



New Labor Saving Innovations in Industry

At Bearing plant No 1, a new method for the transverse spiral rolling of needle bearings with conical heads has been introduced. The process is now done on an automated unit, which was designed and constructed by the collective. Labor productivity has increased 12 times, and work conditions have improved considerably. The new type automated units will be included in the automated lines for the production of cardan bearings as well as in several other sections of the plant.

An automated line for the grinding, flat removal, and assembling of starter gears has been put into operation in the mechanical shop of the Truck and Tractor Electrical Equipment Plant (ATE-1). While three men once handled these operations, now one man has taken over. Labor productivity has doubled. A new process for producing generator terminals by the upsetting method is being tested at this plant. Its use in production will raise labor productivity two to three times and will form the basis for the complex mechanization of

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New Labor Saving Innovations (cont'd)

the entire section.

The innovators of the Autoaggregate Plant have built a new combination punch, combining two operations, the preparation and moulding of connecting rods for truck engines. Labor consumption is cut in half, part of the equipment is no longer needed, and the operation has been fully automated. (Moskovskaya Pravda, 26 July 1960. Full translation).

### The Drive to Automation

The XXI Congress of the Party, the June and July Plenums of the Central Committee of the CPSU have presented the task of a sharp increase in machinery production. This requires the retooling of many plants, primarily machine tool, truck and tractor, bearing, electrotechnical, radiotechnical, instrument plants and other branches of industry. Technological progress in these branches of industry is unthinkable without the introduction of technically perfected and economically effective means of mechanization and automation of production. 1,300 automated lines, including 450 lines at the enterprises of the Moscow City Economic Council for the metal working industry alone, must be produced during the Seven-year Plan.

With the production of automated lines on such a scale, the question of the technical direction in planning acquires significance. In short, this is the question on the qualitative side of the lines and the methods of producing equipment for them.

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### The Drive to Automation (cont'd)

Automated lines should be developed according to progressive technological processes. Unfortunately, the volume working of parts by accurate casting and plastic deformation methods (punching, rolling, knurling, reduction, etc.) instead of mechanical working has not yet found wide application in planned automated lines, in spite of the fact that such methods are extremely effective. The scale of introduction of automated lines and rotary machines effective for these processes is still too small. Such lines should be widely used in the production of radio equipment, electrical equipment, calculating machines, and parts from plastic.

The cycle of operations performed by lines at present is limited. The mechanization and automation of assembly processes is in particularly bad shape, although possibilities are almost unlimited. According to figures in the American magazine American Machinist, more than 120 American plants in the metal working industry had automated assembly in 1955.

The Drive to Automation (cont'd)

It is obvious that we must quickly build hundreds of automated and semi-automated lines and units for the automation of assembly. It is also time to solve the problem of producing mechanized tools for assembly work as well as means of transport for over-all production needs. For example, we have long needed a standard for mechanized tools and the organization of their production at specialized plants. This is cause for constant concern to the Sovnarkhoz. We should also think of building similar specialized plants in other economic rayons.

Life has already dictated that we also create large specialized planning organizations with experimental-production bases. Their goal is the complex development of transport systems at machine construction plants. These organizations would also be able to lend technical aid to plants conducting the introduction of complex mechanization and automation.

The question of flexibility, that is, the adapt-

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The Drive to Automation (cont'd)

ability of automated lines, machine tool equipment, transport and other means of automation, is bothering industrial workers. In the automobile industry, for example, the absence of such facilities is one of the reasons for the slow replacement of truck makes. The production of new vehicles is delayed two or more years because of the inability of the means of automation and mechanization to effect a frequent change in product. In addition, the construction of new equipment in place of old brings considerable costs along with it.

Our automated adjustable lines are primarily for the machining of revolving blanks and are unsuitable for body parts. In past years, the machine Tool Plant imeni Ordzhonokidze has built only four adjustable lines according to the draught of the SKB-1. The conclusion is clear: we need quickly and easily adjustable lines, machine tools with programmed control, multi-positional combination tools and other means of automation and mechanization. The work on the development of automated lines from

The Drive to Automation (cont'd)

standardized components and units, which was mentioned at the July Plenum of the CC of the CPSU, has great prospects. The Experimental Scientific-Research Institute for Metal Cutting Machine Tools should speed up work on the typification and standardization of component units and get ahead of the demand. We also need specialized plants for the centralized organization of the production of these components.

We should mention that the construction of group machine tool components, basically for the needs of machine tool plants, by the Moscow City Sovnarkhoz plants can satisfy the demand of only a small number of the machine construction plants. The USSR Gosplan should solve this problem on a larger scale. In order to cut the time of planning and producing automated lines, it is necessary that every machine tool, casting or forge-pressing machine produced should be adaptable to use in automated lines. In this connection, work on the development of automated lines from universal existing equip-

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The Drive to Automation (cont'd)

ment on the base of its modernization and automation, being conducted by the "Orgstankinprom" Institute and "Frezer" and GPZ-1 Plants, is worthy of attention and dissemination.

A sharp increase in program-control machine tools is called for. More machine tool plants should participate in their production. Their specialization should also be defined. There is a great need for the organization of special design bureaus for program machine tools. The ESRI for metal cutting machine tools should increase its work in the field of coordinating scientific-research and experimental work in the programming of equipment.

It is extremely important to organize the mass-production of various mechanisms for equipment programming at enterprises of the radiotechnical industry. The State Electronics Committee, the USSR Gosplan, and the State Committee on Automation and Machine Construction should become interested in this problem and should quickly approve the tentative plan for the planning and produc-

The Drive to Automation (cont'd)

tion of all automated lines to be produced in 1960-1965, taking the modern needs of industry into consideration.

Inspired by the decisions of the July Plenum of the CC of the CPSU, the workers of Moscow industry are directing their efforts with still greater determination on the improvement of production. The solution of the problems mentioned in this article will speed up even more the solution of the tasks given by our party in the field of technological progress and will raise even higher the technical level of our industry, as well as increase production and improve the quality of our products to a great degree. (Moskovskaya Pravda, 26 July 1960. Full translation).

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New Lathes

The collective of the Leningrad Automated Machine Tool Plant will present this year to the machine and instrument builders ten new model automated lathes. Most of them are high-accuracy lathes. Together with great accuracy of machining, the designers planned for the tools a high RPM rate. The spindle speed of the new longitudinal grinding automated lathes is 8-10,000 RPM. A new technical profile of the plant is that of high accuracy machine tool construction. Automated longitudinal and turret lathes will be produced at the plant. The enterprise is undergoing reconstruction in connection with this. (Gudok, Moscow, 1 December 1960. Full translation).

## MISCELLANEOUS

### Soviet Trucks to Congo

GAZ-63 trucks are ready for shipment to the Congo. The Secretary General of the UN requested the Soviet government to furnish truck transport to the armed forces which have been sent to the Congo. 100 trucks from the Gor'kiy Truck Plant are ready to be shipped.

The GAZ is an extremely rugged two and a half ton truck. It has proved itself in the sandy wastes of Central Asia and on the steppes of Kazakhstan. The trucks are produced with the so-called "tropical finish". The wheel hubs are hermetically sealed. Many parts are of plastics which are resistant to high temperatures.

A team of experienced instructors is accompanying the trucks to the Congo. Right after the food-carrying ship, "Leninogorsk", another Soviet ship will leave for the Congo with the 100 trucks, a repair shop, and spare parts. (Komsomol'skaya Pravda, 23 July 1960. Full translation).

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### Plastic Ball Bearings

In the 20 April edition of Moskovskaya Pravda, the letter "Let's Work Together" by GPZ-1 Plant workers Sudakov, Pal'mov, and Muyzhnek appeared. The authors bring up the vital problem of developing creative cooperation between producer and scientist for the joint solution of introducing plastics into bearing production.

The interest of technological progress has aroused our scientists to seek new forms of cooperation with industry. As a result of this, scientists in the plastics laboratory took the initiative of lending gratuitous aid to the machine builders. This beginning was supported by the party organization and scientific council of the institution with great enthusiasm.

This year our scientists have conducted 240 consultations with the workers of 78 enterprises on the problems of the application of plastics in production. The scientists went to the plants to aid in the introduction of plastic materials. The school handed over the blueprints and test models of machinery parts for plastics

Plastic Ball Bearings (cont'd)

machinery construction. Since the organization of the plastics lab at the MVTU, close contact has been established with the workers of GPZ-1, who are solving the problem of producing rocker bearings from polymers.

Professor A. I. Zimin was able to find an original, constructive solution for the creation of a highly productive automated machine for the production of bearing parts (and other units) of plastic. A working plan was developed quickly. A basic solution of the problem of building a machine for the tabletization of lamellar plastics has already been found. This year we hope to develop a machine for the cutting of fibrous materials, accurate dosing, and pressing into tablets.

The search for a progressive technology for the production of plastic bearing parts was successfully concluded and led to the creation of a press-mould which allows a single separator instead of two halves as now. This eliminates the laborious operation of riveting or joining them by some other method. Two things, however,

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Plastic Ball Bearings (cont'd)

are slowing down the work. First of all, the chemists have not yet brought out plastics satisfactory to the machine builders, which would insure reliable operation to the rocker bearings. Secondly, the lack of a clear system of organizing the introduction of polymers into machine construction is hampering progress.

As a result of tests it was established that existing brands of plastics are not satisfactory for plastic bearing balls. The materials used for separators are also unsatisfactory and, more important, unstable. We hope that the Chemical Division of the USSR Academy of Sciences and the State Committee on Chemistry of the USSR Council of Ministers will help the machine builders successfully solve this problem which has such a great significance for the national economy. (Moskovskaya Pravda, 26 July 1960. Full translation).